

## Original Article

# Prevalence of the *Helicobacter pylori* infection in chronic urticaria

Majid Mogadam Rostamy

Department of Dermatology, Ardebi University of Medical Sciences, Ardebil, Iran

**Abstract** *Background* Urticaria is one of the most common clinically diagnosed dermatologic diseases. Wheals and pruritus are typical presentation of disease. Correlation between chronic urticaria (CU) and *Helicobacter pylori* infection has been proposed by many studies previously.

*Objective* To confirm the correlation between *H. pylori* infection and CU by the anti-*H. pylori* immunoglobulin measurement.

*Patients and methods* In a case-control study, we measured serum anti-*H. pylori* IgG and IgA in 43 patients with CU, 10 patients with CU and angioedema and 40 normal persons as controls. Personal identity, disease duration, presence of gastrointestinal complaints, angioedema history and previous history of anti-*H. pylori* treatment was collected and then analyzed by the SPSS software.

*Results* Anti-*H. pylori* P IgG, anti-*H. pylori* P IgA and anti-*H. pylori* IgA plus IgG together were positive in the 72.1%, 46.5% and 44.18% of the CU patients, respectively. Among patients with CU and angioedema anti-*H. pylori* IgG, anti-*H. pylori* IgA and anti-*H. pylori* IgG plus IgA together were positive in the 90%, 60% and 60%, respectively. Anti-HP IgG, anti-*H. pylori* IgA and anti-*H. pylori* IgG plus IgA together were positive in the 37.5%, 40% and 27.5% of the control group, respectively. Anti-*H. pylori* IgG and anti-*H. pylori* IgG plus IgA antibodies together in the CU patients were statistically associated ( $P < 0.002$ ). Angioedema presentation was related to the serum anti-*H. pylori* IgG with the 86% accuracy confidence.

*Conclusion:* Our study supports the correlation between CU and *H. pylori* infection and *H. pylori* eradication therapy may have a role in the CU treatment protocol.

### Key words

*Helicobacter pylori*, urticaria, angioedema.

## Introduction

In the recent years, many researchers evaluated the correlation between *Helicobacter pylori* infection with chronic urticaria.<sup>1</sup> *H. pylori* infection is the most important cause of peptic ulcer disease and possible relationship with the chronic urticaria is proposed.<sup>2</sup> Much research

has been done on the relationship between *H. pylori* infection and many other chronic diseases such as urticaria, delayed growth in children, lymphoma of stomach etc. Some studies support that same kind of immunoallergic mechanisms are involved in peptic ulcer disease and chronic urticaria.<sup>3,4</sup> In many cases, urticaria and allergic reactions can be due to *H. pylori* infection and proper treatment of *H. pylori* infection can control resistant chronic urticaria.<sup>5</sup> In this study, we determined the prevalence of antibodies against *H. pylori* infection by serologic method in patients with chronic urticaria and healthy

---

### Address for correspondence

Dr. Majid Mogadam Rostamy, MD  
Assistant Professor of Dermatology,  
Ardebi University of Medical Sciences,  
Ardebil, Iran.  
Email: drrostami@yahoo.com

group, and comparison with other research statistics about *H. pylori* infection relationship with chronic urticaria.

### Patients and methods

This was a case-control study. The study population included 43 patients with chronic urticaria, 10 patients with angioedema and urticaria and 40 age- and sex-matched healthy controls. The patients with chronic urticaria were clinically diagnosed by dermatologist while the control group comprised of healthy blood donors. A questionnaire was completed by dermatologist in both groups. Blood samples were collected and analyzed for levels of serum IgG and IgA antibodies against *H. pylori*. Finally, statistics were analyzed by using SPSS software and T pair test method.

### Results

In patients with chronic urticaria, minimum age was 18 years and maximum 84 years. The prevalence of chronic urticaria was highest i.e. 79% in 3<sup>rd</sup> and 4<sup>th</sup> decades. The highest prevalence of age with chronic urticaria and angioedema was third (30%) and fourth (50%) decade of age, respectively. Duration of disease in chronic urticaria ranged from 3 months to 180 months with a mean of  $27 \pm 36.43$  months.

**Table 1** shows the positive anti-*H. pylori* IgG, IgA and IgG plus IgA antibodies in the three groups i.e. 43 patients of chronic urticaria, 10 of angioedema and urticaria and 40 controls.

In the 43 patients with chronic urticaria, IgG, IgA and IgG plus IgA antibodies were positive in 31 (72.1%), 20 (45.61%), and 19 (44.18%) patients, respectively.

Of the 10 patients with angioedema and urticaria, IgG, IgA and IgG plus IgA together were positive in 6 (60%), 9 (90%) and 6 (60%) patients, respectively.

Amongst 40 controls, serum levels of IgG, IgA and IgG plus IgA together, were raised in 16 (40%), 15 (37.5%), and 11 (27.5%) cases, respectively.

The results showed that angioedema with gastrointestinal symptoms had insignificant relationship with serum IgG titers ( $P=0.150$ ) or titers of IgA antibodies ( $p=0.3291$ ).

Chronic urticaria had no significant relationship between serum titers of IgA ( $p=0.550$ ) but had significant relationship between serum titers of IgG ( $p=0.002$ ) and IgG plus IgA together ( $p=0.008$ ).

Of all study population (patients and control group), 16 males were IgA and IgG negative (19.3%), 10 cases of positive IgG and negative for IgA (12%), 4 cases of positive IgA and negative for IgG (4.8 %) and 17 cases of positive IgA and IgG (20.5%). Amongst females, 15 (18.1%) patients were IgG and IgA negative, 5 cases IgA negative and IgG positive (6%), 1 of IgG negative and positive IgA (2.1%), 15 (18.1%) cases of IgA and IgG positive. There was no significant relationship between gender and IgA and IgG serum levels.

### Discussion

In our study, 43 patients with CU, 31 (72.1%) were IgG positive, 20 (46.5%) were positive IgA and 19 (44.2%) concurrent IgA and IgG positive; whereas in the control group 16 were IgG positive (40%), 15 were IgA positive (37.5%) and 11 simultaneous IgG plus IgA positive (27.5%). Overall results indicate a

**Table 1** Prevalence of anti-*H. pylori* IgG, IgA and IgG plus IgA together in three groups.

Group	Positive IgG n (%)	Positive IgA n (%)	Positive IgG+IgA n (%)
Chronic urticaria (n=43)	31 (72.1)	20 (46.5)	19 (44.2)
Angioedema and urticaria (n=10)	6 (60)	9 (90)	6 (60)
Controls	16 (40)	15 (37.5)	11 (27.5)

significant relationship with chronic hives and IgG level and both IgG plus IgA together in patients, indicating the possible role of *H. pylori* in symptoms of chronic urticaria.

The overall results of our study were consistent with that by other researchers. Garza Yado Mde *et al.*<sup>6</sup> found that in 30 patients of chronic urticaria, the frequency of positive IgG antibodies against HP antigens was about 60%, and that of IgA, fecal HP antigens and rapid urea and histology was 33.31%, 60% and 83%, respectively. They concluded that infection with *H. pylori* has significant relationship with chronic urticaria.<sup>6</sup> In contrast to this study, we determined *H. pylori* infection only by serologic method. Higher results in our study could have been achieved if we had used fecal antigen test or urea breath test.

In the study by Gasbarrini *et al.*<sup>7</sup> in 1998, 88% of 42 patients with chronic idiopathic urticaria who had received *H. pylori* eradication treatment, showed complete to relative recovery signs and symptoms of urticaria.

In another study by Galdari and Sheriff,<sup>8</sup> in 20 patients with CIU, respiratory urea test was positive in 75% and anti- *H. pylori* IgG antibody titers in 75% of patients were raised, while in control group, urea breath test was positive in 55% and antibody was positive in 20% only. This difference indicates significant relationship between chronic urticaria and anti-*H. pylori* antibodies.

Fiebiger *et al.*<sup>9,10</sup> assessed skin symptoms after HP eradication in 55 patients with HP infection and chronic idiopathic urticaria, and noticed complete or partial improvement in 74.6% of patients, indicating the possible relationship with HP infection with chronic urticaria.<sup>9,10</sup>

Still in another study, Gonzalem *et al.*<sup>11</sup> in Spain in 2005 analyzed the relationship between chronic idiopathic urticaria and infection due to *H. pylori*. 20 patients with chronic urticaria with positive urea breath test were selected and after receiving eradication therapy, urticaria improved in 11 patients (55%) and in 9 (45%) patients urea breath test became negative and in 2 remained positive. Finally, the relationship between disappearance of symptoms and urea breath test negative, was found in 45% of patients.<sup>11</sup> Their final result that there is probable relationship between *H. pylori* infection and chronic urticaria is similar to our study. Our study showed that most patients with chronic urticaria were in age group 20-40 years and mostly males (55.8% vs. 44.2% females). Angioedema had no significant relationship with *H. pylori* infection (level of IgG and IgA had no significant relationship with angioedema). Symptoms of gastrointestinal discomfort had no significant relationship with *H. pylori* infection. Similarly, gender had no effect on IgA and IgG levels in patients with *H. pylori* infection.

If *H. pylori* infection was investigated by other methods such as urea breath test, fecal antigens and histological studies or antibody against the components of *H. pylori* as anti-Lpp20, the results of *H. pylori* infection could have been

higher. It is recommended that further studies should be performed with focus on larger population in other regions of Iran particularly in some border regions with high prevalence of *H. pylori* infection, to determine whether testing the *H. pylori* infection is necessary in patients with chronic urticaria or not.

## References

1. Bressler RB. Pathophysiology of urticaria. *Immunol Allergy Clin N Am* 1995; **15**: 659-77.
2. Kobza Black A, Garttan CEH. The mediators involved in acute and chronic urticaria. *Recent Advances in Dermatology, Vol 9*. Edinburg: Churchill Livingstone; 1992. P. 119-32.
3. Wiggins CA, Dykewicz MS, Patterson R. Idiopathic anaphylaxis; classification, evaluation and treatment of 123 patients. *J Allergy Clin Immunol* 1988; **82**: 849-55.
4. Wilkison JRW, Lee TH. General anaphylaxis. In: Lachmann PJ, Peters DK, Rosen FS, Walport MS, eds. *Clinical Aspects of Immunology, 5<sup>th</sup> edn*. Oxford: Blackwell Scientific Publications; 1993. P. 999-1014.
5. Rook AJ, Maibach HI, Juhlin L. Urticaria (special issue). *Semin Dermatol* 2006; **6**: 272-356.
6. Garza Yado Mde L, López García AI, Paz Martínez D *et al*. Prevalence of seropositividad to antibodies IgG and IgM against *Helicobacter pylori* in the medical residents of the University Hospital of Puebla. *Rev Alerg Mex* 2006; **53**: 69-72. Spanish
7. Di Campli C, Gasbarrini A, Nucera E *et al*. Beneficial effects of *Helicobacter pylori* eradication on idiopathic chronic urticaria. *Dig Dis Sci* 1998; **43**: 1226-9.
8. Galadari IH, Sherif MO. The role of *Helicobacter pylori* in urticaria and atopic dermatitis. *Skinmed* 2006; **5**: 172-6.
9. Fiebiger E, Maurer D, Holub H *et al*. Serum IgG auto antibodies directed against the  $\alpha$  chain of Fc $\epsilon$ RI: a selective marker and pathogenetic factor for a distinct subset of chronic urticaria patients? *J Clin Invest* 1995; **96**: 2606-12.
10. Fiebiger E, Hammerschmid F, Stingl G, Maurer D. Anti-Fc $\epsilon$ RI $\alpha$  autoantibodies in autoimmune-mediated disorders. Identification of a structure-function relationship. *J Clin Invest* 1998; **101**: 243-51.
11. González Morales JE, Leal Villareal L, Castillo Salazar Nde J *et al*. Correlation entre urticaria chronica e infecci por *H. pylori*. *Rev Alerg Mex* 2005; **52**: 179-82.